Statement of
The Honorable Spencer Abraham
Secretary
U. S. Department of Energy
before the
House Committee on Appropriations
Subcommittee on Energy and Water Development

FY 2002 Appropriations Hearing

May 2, 2001

Introduction

Mr. Chairman and members of the Subcommittee, it is a pleasure to appear before you for the first time to discuss the Department's FY 2002 budget request.

This budget is an important first step toward the future. It is a prudent transition between what was left to us by the previous administration and where we will be headed in the budgets for 2003 and beyond. In the limited time given us to formulate this budget, we turned its focus as much as we could toward our ultimate goal of major DOE reform. We also initiated a broad range of strategic and policy reviews that would fully shape future budgets. As a result, this budget begins to reflect our intention for serious reform in some important program areas. And make no mistake, change is coming. Some people will fault this approach, saying it changes too much or too little. But this is the right budget for this year; it's the responsible way to set us on a course toward a comprehensive change in the way we do business.

Principles Guiding the FY 2002 Department of Energy Budget

The total FY 2002 budget request for the Department is $19.2 billion. Approximately 92 percent of the total Department of Energy budget, or $17.6 billion, is for programs within the jurisdiction of this Subcommittee.

This budget is a principled and responsible effort, one that fulfills President Bush's commitment to moderate discretionary spending while meeting critical requirements in national security, energy, science, and environmental quality. This budget adjusts program requests to reflect reviews underway to reevaluate and refine the Department's missions, and to implement management strategies that meet the challenges of the future. The request incorporates the following principles:

- Enhance complex-wide safeguards and security efforts
- Eliminate programs that have completed their mission, are redundant, ineffective, or obsolete
- Review all private-sector subsidies and maximize cost-sharing opportunities
- Finish promising R&D projects where investment installments are nearly complete

- Establish baselines and improve accountability for project and capital asset management
- Arrest deterioration of infrastructure through stronger management of maintenance
- Utilize computer information systems to improve management and promote efficient use of resources
- Eliminate unnecessary layers of management, and direct personnel to high-priority missions
- Achieve a 5-10 percent savings in management expenses through comprehensive, creative management reform
- Recognize and respect Congressional policy determinations for operating the DOE complex.

This budget also maintains the Administration's flexibility to respond to government-wide policy reviews now underway. The Department of Defense Nuclear Posture Review, the National Security Council reviews of U.S. deterrence requirements and nonproliferation programs, Vice-President Cheney's National Energy Policy Development Group, and a newly initiated internal Environmental Management Mission Assessment figure heavily in the Department's current budget and its future year planning. Pending future decisions as a result of the reviews, the budget seeks to preserve program options by maintaining core requirements in areas under review unless a change was dictated by a Presidential commitment. We stand ready to work with you and the other Members of this subcommittee to address the recommendations of these reviews.

FY 2002 Funding Request for National Security Programs

The Department of Energy preserves U.S. national security by managing our nation's nuclear arsenal and working to reduce the global danger from the proliferation of nuclear materials and other weapons of mass destruction. A total of $7.2 billion is requested in FY 2002 for DOE National Security programs, an increase of $180.5 million from the FY 2001 appropriated level. The FY 2002 request refocuses funding priorities to meet critical national security needs. This budget protects the operational readiness of the nuclear weapons stockpile. We are conducting surveillance, experiments, and simulations for individual weapons and weapon systems. At the same time, we are investing in advanced scientific and manufacturing capabilities for the future to ensure the capability to accurately assess weapon status, extend weapon life, and certify that the stockpile remains safe and reliable.

We are also emphasizing Safeguards and Security throughout the DOE complex. This budget provides $1.03 billion for these activities across major program budgets, an increase of $100.6 million. Protection of the DOE complex from physical and cyber intrusions is a top priority. This request clarifies accountability and responsibility by providing Safeguards and Security funding within the program office requests. These activities will be managed by the responsible program offices and overall policies will be determined through the Office of Security and Emergency Operations.

National Nuclear Security Administration

The National Nuclear Security Administration (NNSA) is in its second year of implementation. It was created by the Congress to respond to the changing and complex set of challenges in the national security environment. The FY 2002 funding request for the NNSA addresses these challenges by making significant investments to maintain our nation's nuclear weapons arsenal, shore up an aging weapons infrastructure, and improve safeguards and security throughout the DOE complex.

The FY 2002 budget request for programs within the National Nuclear Security Administration (NNSA) total $6.8 billion, a $136.1 million increase over the FY 2001 appropriation, including:

- *Weapons Activities* ($5,300.0 million)
- *Defense Nuclear Nonproliferation* ($773.7 million)
- *Naval Reactors* ($688.0 million)
- *Office of the NNSA Administrator* ($15.0 million)

Within this total, funding has been shifted to Weapons Activities to increase support for the critical needs of our nuclear weapons stockpile.

Weapons Activities

As I have stated on several occasions, I believe my most sobering and important responsibility as the Secretary of Energy is to certify to the President each year that the U.S. nuclear arsenal remains safe, secure and reliable. Annual certifications, the fifth completed in January of this year, are a measure of the success of National Nuclear Security Administration's Stockpile Stewardship Program. The success of that program is a tribute to the excellent work of the men and women who carry out the various stockpile stewardship activities - from surveillance and evaluation to research and development. I've talked to many of them since becoming Secretary, and I already have started traveling to the labs, plants, and field offices to meet these dedicated professionals. We must be careful not to take actions which might hinder these people from performing their best work or we risk jeopardizing our confidence in this nation's nuclear deterrence, the cornerstone of our national security strategy.

The Administration is now conducting reviews to determine an appropriate national security strategy for this country and will include the role of nuclear deterrence and possibly a position on the size of the future nuclear stockpile. In the case of DoD, the Administration plans to determine final FY 2002 and outyear funding needs when these reviews are complete. This review could also impact DOE's NNSA weapons related programs. We, of course, will work with you to discuss any changes which the Administration may recommend.

Reducing the size of our active stockpile, without the complete retirement of a weapon system or the dismantlement of a significant number of warheads in the inactive stockpile, will not have a significant impact on the requirements and costs of the Stockpile Stewardship Program for the outyears. It is not well understood that, even if the strategic review concludes that a weapon system can be retired from the stockpile, the workload at select facilities will increase dramatically. Furthermore, a smaller, less diverse stockpile may require a more aggressive surveillance program to identify and fix any problems in the stockpile.

As our stockpile continues to age, the significant investments in experimental and computational tools, as well as production infrastructure, must continue to allow our scientists and engineers to perform the required maintenance, assessments for certification, and refurbishments. I believe that the current stockpile age, and the potential reduction in numbers, dictate the need for these new capabilities, even if we were doing underground nuclear testing. Our pursuit of these capabilities has undoubtedly been hastened by the moratorium on underground testing. The nuclear weapons program in this country has always been on the cutting edge of science, helping us to attract the best and the brightest of our Nation's scientists and engineers.

The current budget request for Defense Programs of $5.3 billion supports all scheduled maintenance, evaluation, and certification activities during fiscal year 2003 for the current stockpile; supports the continuation of life extension activities for the W87; allows us to proceed with the refurbishment of the B61; and makes preparation for the potential refurbishments of the W76 and W80 systems. Overall, these refurbishments represent work on more than half of the stockpile; they are divided into blocks, rebuilding only limited groups of warheads at a time, and allowing for future decisions to continue with the remaining blocks, or retire given systems altogether. It is important to note that significant initial investments are required regardless of the final quantity of weapons to be refurbished and funds are included in our budget for many of these investments. The current budget request also supports the continued restoration of critical production capabilities, the manufacture of a certifiable W88 pit in FY 2003 at the Los Alamos National Laboratory, and the production of tritium using Tennessee Valley Authority reactors beginning as early as October 2003.

This request continues to support the development of some of our experimental and computational tools. The new schedule for the completion of the full National Ignition Facility design of 192 beams in FY 2008 as submitted to Congress last year, will be maintained. Construction of the second axis of the Dual Axis Radiographic Hydrotest Facility (DARHT) will continue, with completion expected in the first quarter of FY 2003. The first axis of DARHT is already providing valuable weapons related data. Subcritical experiments at the Nevada Test Site will continue providing data on aging plutonium. Under this request, the Accelerated Strategic Computing Initiative (ASCI) will also continue to build on its extensive record of accomplishments. In FY 2002, the ASCI teams are expected to complete a first ever three-dimensional full weapon simulation.

This budget request for Defense Programs will provide for the continued safe transportation of nuclear warheads, components and other Departmental materials. It will allow us to maintain the physical security of our facilities consistent with current requirements, begin to improve our cyber security in response to evolving threats, and provide maintenance funding for all facilities and sites at the current level.

The Office of Defense Programs has conducted a strategic review of our facilities and is developing management tools to better manage our facilities infrastructure. Over the years, our nuclear weapons production plants degraded, leaving a tremendous backlog of deferred maintenance and modernization. The deterioration of existing facilities is a very serious threat to our mission readiness as well as overall safety. We must begin to address this problem by

putting in place the management systems that allow us to identify funding and implement unified priorities for facilities maintenance.

The current budget request will maintain our federal staffing levels at the current on-board level, including consolidation of the NNSA federal landlord and safeguards and security staffs, and will allow us to maintain current M&O employment levels. It is so important to recruit and retain the critical skills we desperately need as our cadre of experienced scientists, engineers, and manufacturing personnel reach retirement, and a new generation must be prepared to confidently take over the vital stewardship of our nation's nuclear deterrent.

Defense Nuclear Nonproliferation

A total of $773.7 million is requested for Defense Nuclear Nonproliferation programs. Although this is 11 percent below the FY 2001 appropriated level, it represents a $61.0 million or nine percent increase over the FY 2000 appropriation. The Office of Defense Nuclear Nonproliferation (NN) supports U.S. efforts to reduce the threat posed by the proliferation of weapons of mass destruction. The Office works to: 1) detect the proliferation of weapons of mass destruction worldwide; 2) prevent the spread of weapons of mass destruction material, technology and expertise; and 3) reverse the proliferation of nuclear weapons capabilities.

As you know, the Administration is in the process of developing a strategy to guide our interaction with Russia as well as performing a government-wide review of the nonproliferation programs with Russia. The request for Defense Nuclear Nonproliferation activities allows flexibility to respond to these recommendations by maintaining core activities in the following areas:

- *Nonproliferation and Verification Research and Development* ($206.1 million)
- *Arms Control and Nonproliferation* ($101.5 million)
- *International Materials Protection, Control and Accounting* ($138.8 million)
- *Fissile Materials Disposition* ($290.1 million)
- *HEU Transparency Implementation* ($13.9 million)
- *International Nuclear Safety and Cooperation* ($13.8 million)

The $206.0 million request for Research and Development includes: $38.2 million for Chemical and Biological national security to continue to develop technologies that respond to the potential use of chemical and biological weapons; $102.0 million for radiation and nuclear materials detection, micro-technologies, and satellite and ground-based nuclear explosion monitoring; and $40.1 million for Proliferation Detection activities to develop technologies – sensors for example – for remote monitoring of effluents such as gases that might be emitted from some proliferation activities, and to develop technologies for detecting physical features, such as the footprint of a facility that might be involved in proliferation activity.

The $101.1 million FY 2002 request for Arms Control and Nonproliferation activities includes $6.6 million for the Nuclear Cities Initiative (NCI) to create civilian ventures in one of Russia's 10 closed nuclear cities; $22.1 million for the International Proliferation Program (IPP) to promote employment and economic development opportunities for displaced nuclear weapons scientists and engineers who were part of the Russian nuclear weapons complex; $4.0 million for the Second Line of Defense program, to help the Russian State Customs Committee detect and

deter illicit trafficking of nuclear materials; $16.7 million for the International Safeguards program to develop verification capabilities for monitoring the spent nuclear fuel placed in cans at Nyongbyon, North Korea, and support sustainability at 13 sites in the New Independent States where MPC&A upgrades have been completed; and $11.0 million for International Security for technical assistance to Kazakhstan to monitor and prepare for long-term security and storage requirements for plutonium-bearing spent fuel located at the BN-350 breeder reactor at Aktau. The Department will also provide technical expertise to work with North Korea to minimize corrosion of spent nuclear fuel cans at Nyongbyon.

The FY 2002 request includes $138.8 million to continue International Materials Protection, Control and Accounting activities. In FY 2002, efforts to consolidate material and blend-down HEU at Russian civilian sites will be increased, offset by decreases in activities at Navy sites.

The FY 2002 request includes $187.1 million for U.S. and Russian surplus plutonium disposition activities, primarily to complete the MOX facility design. In FY 2002, work on the Pit Disassembly and Conversion Facility continues at a reduced rate, and work on the design of the Plutonium Immobilization and Associated Processing Facility is suspended. This request maintains commitments under the government-to-government agreement with Russia on Plutonium Disposition. The Administration policy review will take into account some of the changes that have occurred in Russia since our program began. The request includes $50 million for the Highly-Enriched Uranium (HEU) Blend Down Project at the Savannah River Site to provide the capability to stabilize surplus uranium material at the site and ship it to commercial vendors for use in fabricating nuclear fuel for Tennessee Valley Authority (TVA) reactors.

In FY 2002, the HEU Transparency Implementation program will continue to convert Russian civilian highly-enriched uranium (or HEU) to low-enriched uranium (LEU), and monitor the blend-down of Russian weapons-usable HEU for sale in the U.S. for use in domestic nuclear power reactors. This program monitors the nonproliferation aspects of a February 1993 agreement between the U.S. and the Russian Federation covering the U.S. purchase, over twenty years, of LEU derived from at least 500 metric tons of HEU removed from dismantled Russian nuclear weapons. The FY 2002 request includes $14 million to continue to collect and analyze data to help provide overall confidence that the Russians are converting HEU from dismantled nuclear weapons into LEU.

International Nuclear Safety and Cooperation implements lasting improvements in the nuclear safety culture and regulatory infrastructure for Soviet-design reactor operations in nine former Soviet Union countries. In FY 2002, the request includes $13.8 million for safety parameter display systems for the Ignalina and Novovoronezh nuclear power plants in Lithuania and Russia, respectively, and for operational safety improvements at plants in Ukraine. This program was instrumental in helping Ukraine shut-down the last operating reactor at the Chornobyl power plant and we anticipate helping other countries with Soviet-designed reactors to do the same.

Naval Reactors

The FY 2002 request includes $688.0 million for the Naval Reactors (NR) program to provide the Navy with safe, long-lived, militarily-effective nuclear propulsion plants, and to ensure their continued safe and reliable operation to meet the nation's defense requirements.

The request enables the program to continue to meet its responsibilities in all aspects of naval nuclear propulsion — from technology development through reactor operations, and ultimately to reactor plant disposal. Major efforts for the near future include upgrades to existing components and equipment to help extend operating lifetimes and improve overall reactor plant performance; development of the reactor for the Navy's new CVNX aircraft carrier; and development / testing of the next-generation reactor components and systems for the Navy's new VIRGINIA class attack submarine, including the first designed life-of-the-ship core, which will obviate the need for expensive refuelings; and the development of a new concept steam generator, which should greatly reduce corrosion concerns.

Other Defense Activities

In addition to the NNSA programs, there are five other essential national security programs that report directly to the Secretary of Energy, with a request totaling $395.1 million:

- *Security and Emergency Operations* ($268.5 million)
- *Intelligence* ($40.8 million)
- *Counterintelligence* ($46.4 million)
- *Worker and Community Transition* ($24.4 million)
- *Independent Oversight and Performance Assurance* ($14.9 million)

The Office of Security and Emergency Operations (SO) develops the policies and provides programmatic direction governing the protection of national security and other assets entrusted to the Department of Energy. SO also provides safeguards and security training and field assistance to ensure the efficient and effective implementation of Departmental security policy. The FY 2002 budget request for the Office of Security and Emergency Operations is $268.5 million. This reflects an increase of $38.7 million above the FY 2001 level, $20 million of which reflects the transfer of responsibility for the Corporate Management Information Program (CMIP) from the Departmental Administration account.

The SO organization manages Department-wide security activities and determines policy, however, the Department's Safeguards and Security activities are funded within the major program requests. The FY 2002 request totals $1.03 billion for Safeguards and Security throughout the DOE complex – a $101 million increase over the FY 2001 enacted level. This supports: protective forces; security systems; nuclear safeguards and security, including nuclear material control and accounting; personnel, information, and cyber security; and security investigations. In particular, the FY 2002 request provides $109.7 million for cyber security, an increase of $32.8 million above the FY 2001 enacted level, to enhance protection of information in the NNSA and Science programs. The FY 2002 request will also improve physical security throughout the DOE complex and enhance materials management and surveillance.

The FY 2002 request for the Office of Intelligence is $40.8 million to directly support the intelligence responsibilities assigned to the Department by Executive Order 12333, "United States Intelligence Activities." This is a $5 million or 14 percent increase over the FY 2001 appropriated level. The additional funds will provide for increased analytical support, an enhanced information technology infrastructure, and additional technology development.

The FY 2002 request for the Office of Counterintelligence (CI) is $46.4 million, to continue to support the analytical, investigative, inspection, cyber, polygraph, training and CI evaluation capabilities necessary to identify and address foreign intelligence targeting and collection activities directed at DOE facilities. This is a $1.4 million or 3.1 percent increase over the FY 2001 appropriation. The increase will provide for equipment and work necessary to develop and install an updated Information Technology infrastructure across the headquarters and field elements of the DOE Counterintelligence Program.

The FY 2002 budget request for the Worker and Community Transition Program is $24.4 million, essentially the FY01 funding level. The Department will continue to experience restructuring of its contractor work force in FY 2002 and beyond, both in the number of employees and in the functions of employees in the contractor work force. These adjustments will be driven by changes in the management of the strategic stockpile, shifts in skill mix requirements, and closure of facilities. Within the request is $10.7 million for Work Force Restructuring to support the review and approval of work force restructuring plans and actions, provide enhanced benefits to separated workers, coordinate work force planning activities to retain critically needed skills, and assist field offices in labor negotiations. At the proposed funding level we estimate being able to provide enhanced benefits to approximately 2,000 workers.

FY 2002 Funding Request for Energy Programs

Recent events have called into question the future availability, cost, and reliability of our traditional fuels. To address the situation, President Bush asked Vice President Cheney to lead an effort to develop a national energy policy to help the private sector and government promote dependable, affordable, and environmentally sound production and distribution of energy for the future. In advance of these policy determinations, the FY 2002 budget focuses DOE's energy programs toward the next generation of energy production, including renewable sources and advanced nuclear technologies. The budget also reflects an evaluation of program operations, and, where feasible and appropriate, proposes to expand cost-sharing in applied research, further develop partnerships, and strengthen industry collaboration.

Renewable Energy Resources

In Renewable Energy Resources we made the tough choices on priorities while keeping key options on the table until the Vice President's Energy Task Force completes its work.

Some will argue that we should just spend more money now on existing energy programs, however, continuing and expanding programs that have been in place as we drifted to the brink of an energy crisis does not appear to be a wiser course of action. We also need a better measure of success for these programs.

For too long, critics have argued that these programs have produced few results. That is not fair. Many of our programs make sense and should be continued. On the other hand, some have produced few, if any benefits. The taxpayers sent us here to weed out the waste and to address growing problems of energy supply. The weeding begins in this budget but we won't just be downsizing. We intend to rebuild our energy resource programs so they are productive, so taxpayers receive a better value, and the programs deliver results measured against rigorous standards.

Including a budget amendment which the Administration will submit, the Department is requesting $276.7 million in FY 2002 for Renewable Energy programs, a decrease of $96.5 million from FY 2001 levels. The request maintains our biomass, hydrogen, hydropower, high-temperature superconducting energy storage, Renewable Energy Production Incentive Program, and transmission reliability programs at approximately current funding levels; and continues core research and development in all Renewable programs except Renewable Indian Energy Resources which will be terminated, and Concentrating Solar Power where only project close-out costs are requested. All other R&D efforts will be funded at levels to keep them as viable options pending finalization of the National Energy Policy.

This budget advances a diverse portfolio of new and emerging technologies that offer cleaner and increasingly affordable solutions to help meet our growing U. S. energy needs. The Renewable Energy Resources program works in partnership with industry and the national laboratories to accelerate the development and use of clean power and heat technologies, including renewable and natural gas hybrids and biofuels. Renewable Energy Resources activities supported in FY 2002 include:

- *Biomass/Biofuels Energy Systems* ($82.0 million)
- *Geothermal Technology Development* ($13.9 million)
- *Hydrogen Research* ($26.9 million)
- *Hydropower* ($5.0illion)
- *Solar Energy* ($42.9 million)
- *Wind Energy* ($20.5 million)
- *Electric Energy Systems and Storage* ($51.7 million)
- *Renewable Support and Implementation* ($9.5 million)

The Biomass Research and Development Act of 2000 established a Biomass R&D Initiative, to be carried out jointly by the Secretaries of Agriculture and Energy. The $82.0 million requested in FY 2002 for Biomass/Biofuels, supports collaborative research and development to improve our nation’s ability to not only convert biomass into electric power, heat, and clean liquid transportation fuels, but also to extract high-value bio-based industrial materials such as chemicals, plastics, and building materials. DOE’s biomass activities within the jurisdiction of the Energy and Water Development Subcommittee focus on two distinct elements: Biopower, which co-fires biomass with coal or gasifies biomass material that is combusted to generate power; and Biofuels, which converts agricultural and other products to ethanol. Combined, these core activities underpin a national effort to more effectively use a vast domestic resource. The total also includes $5 million specifically for cross-cutting, integrated R&D for the emerging bioenergy and biobased products industry.

The $51.7 million request for Electric Energy Systems and Storage includes funding for the Transmission Reliability Program ($8.9 million) to develop real-time measurement and control systems, models, and tools to enhance the reliability and efficiency of grid operations. Advanced Energy Storage Systems ($6.0 million) is supporting R&D in advanced battery systems, flywheels, supercapacitors, and large lithium-ion batteries, to provide seamless power during micro-outages, voltage sags, and frequency disturbances that cost industry up to $150 billion per year. These energy storage devices can help bridge the gap between the reliability of today's electric grid system and current requirements of industrial and commercial users.

Within Electric Energy Storage Systems is funding to support a DOE-wide collaborative effort in Distributed Energy Resources (DER). There is also $1.0 million for DER within Renewable Support and Implementation. Over the next two decades, consumers will be able to choose from an array of ultra-high efficiency, ultra-low emission, fuel flexible, and cost-competitive distributed energy resource products and services. These will be interconnected into the nation's infrastructure for electricity, natural gas, and renewable energy resources. The localized generation and use of power can greatly enhance reliability and power quality and provide an alternative to new transmission lines as we replace the aging electricity and natural gas infrastructure in the United. States. This is critical to U. S. economic growth. The FY 2002 program will support research and development on thermal, electrical, and mechanical power technologies and provide cross-cutting assistance. In FY 2002, funding is included in the Energy Efficiency ($47.3 million), Renewable Energy Resources ($15.9 million) and Fossil Energy ($45.1 million) programs to support this program.

As part of the Electric Energy Storage Systems, the High Temperature Superconductivity program ($36.2 million) is applying the remarkable breakthroughs in superconducting wire technology to develop cables that will allow us to transmit 100 times the amount of electricity as traditional copper cables, with significantly reduced energy losses. Large motors and power transformers using superconductive materials will be much more efficient at only half the size of present-day technology.

Additional programs that are funded at FY 2001 levels are: Hydrogen R&D ($26.9 million); Hydropower R&D ($5.0 million); and the Renewable Energy Production Incentive Program ($4.0 million). The Hydrogen Program includes research and validation projects for the development of safe, cost-effective hydrogen energy technologies that support and foster hydrogen as an integral part of the energy economy. The Program will continue research to improve efficiency, lower emissions, and lower the cost of technologies that produce hydrogen from natural gas and will work with fuel cell manufacturers to develop hydrogen-based electricity storage and generation systems that will enhance the introduction and market penetration of distributed, renewables-based utility systems. In Hydropower R&D, we will continue our R&D activities to support the development of a new generation of more environmentally-friendly hydropower turbines. And, level funding will allow our Renewable Energy Production Incentive program to continue our partnerships with state and local governmental entities to acquire renewable energy generation resources by providing financial incentives comparable to production tax incentives or investment tax credits available to private sector power generators.

Nuclear Energy, Science and Technology

The FY 2002 budget request for Nuclear Energy, Science and Technology is $223.1 million. It focuses on activities that maintain the Department's nuclear research infrastructure.

Today, the nation's 103 nuclear power plants are our second largest source of electricity (20 percent of electricity generation in 2000) and are producing record quantities of power. In 2000, nuclear generation was up another 4 percent to 754 billion kilowatt-hours and U.S. plants reached new highs in operating performance by generating power at nearly 90 percent of total capacity. Meanwhile, the cost to produce electricity from nuclear power hit a record low in 2000, leading nuclear power plants to surpass coal-fired plants for the first time in more than a decade as the lowest-cost source of electricity generation.

The investments that the Department of Energy proposes to make in nuclear energy, science and technology are driven by the recognition that nuclear technology serves the national interest for reliable, affordable and environmentally sustainable electricity. Nuclear technology also allows us to expand our understanding of the universe by powering deep space exploration and it enables, through the use of medical isotopes, the diagnosis and treatment of devastating illnesses. Our investments in nuclear technology are also based on the understanding that, in order to meet the challenges and accelerate innovation in the 21st Century, we must begin today training and preparing tomorrow's scientists and engineers and providing focused investments in the science and technology infrastructure.

The FY 2002 request for Nuclear Energy, Science and Technology program includes:

- *Nuclear Research & Development* ($27.1 million)
- *University Reactor Fuel Assistance and Support* ($12.0 million)
- *Advanced Radioisotope Power Systems* ($29.1 million)
- *Medical Isotope Program* ($18.2 million)
- *Infrastructure* ($81.3 million)
- *Nuclear Facilities Management* ($30.5 million)

The Nuclear Energy Research and Development program sponsors R&D programs to stimulate universities, industry, and national laboratories to innovate and apply new ideas to old problems. This request continues funding for the Nuclear Energy Research Initiative (NERI), to enable support existing projects coming out of our universities, laboratories, and industry; and for the International-NERI program, to leverage U.S. research activities on advanced nuclear technologies with new investments made by the research organizations of other countries. The request establishes the Nuclear Energy Technologies program to complete the Generation IV nuclear power systems technology roadmap and several efforts designed to pave the way for near-term implementation of advanced nuclear power plants in the United States. In addition, under the Nuclear Energy Plant Optimization (NEPO) program, the Department will continue to provide important leadership to encourage the development of advanced technologies needed to keep U.S. plants operating reliably and cost-effectively as they operate over the next three to four decades.

For University Reactor Fuel Assistance and Support the FY 2002 request includes $12.0 million to continue the Department's commitment to maintain U.S. leadership in nuclear research and education, an amount equivalent to previous years. By supporting the operation and upgrade of university research reactors, providing fellowships and scholarships to outstanding students, and providing Nuclear Engineering Education Research Grants, the program helps maintain domestic capabilities to conduct research. The program also helps to maintain the critical infrastructure necessary to attract, educate, and train the next generation of scientists and engineers with expertise in nuclear energy technologies.

The FY 2002 budget request includes $29.1 million for Advanced Radioisotope Power Systems to continue the national program to develop and build advanced nuclear power systems for deep space exploration and national security applications. The Advanced Radioisotope Power Systems program supports and funds DOE activities related to development, demonstration, testing, and delivery of power systems to the National Aeronautics and Space Administration and other federal agencies.

The FY 2002 budget request includes $18.3 million for the Medical Isotope Program to continue the application of DOE's unique expertise and infrastructure to promote advanced research in the use of medical isotopes to treat and diagnose cancer and other diseases. The FY 2002 program continues to provide U.S. researchers with vital, stable and radioactive isotopes that are essential to both basic scientific studies and clinical trials of new cancer treatments.

The FY 2002 budget request includes $81 million for reactor infrastructure requirements. The program will continue to maintain the Argonne National Laboratory-West, Idaho, nuclear infrastructure. An additional $8.7 million will be used to support Test Reactor Area activities, also in Idaho, such as naval reactor fuel and core component testing at the Advanced Test Reactor, and privatized production of isotopes for medicine and industry. We also continue to manage the shutdown of the Fast Flux Test Facility at Hanford, Washington.

The FY 2002 budget request includes $30.5 million for Nuclear Facilities Management to support the Experimental Breeder Reactor-II (EBR-II) shutdown activities; the disposition of spent fuel and legacy materials; and research on, and development of, various waste disposition technologies. This winter, we met our key commitment toward the permanent shutdown of the EBR-II and removed all molten sodium from the EBR-II reactor. By the end of FY 2001, the Department will complete the processing and disposition of the EBR-II secondary and primary sodium and the Fermi reactor sodium, in compliance with the Idaho National Engineering and Environmental Laboratory Treatment Plan. In FY 2002, we will complete all tasks required to place the EBR-II in industrially and environmentally safe permanent deactivation.

The FY 2002 request does not include funding for the Advanced Accelerator Applications (AAA) program initiated in FY 2001. This activity, currently managed by the Office of Nuclear Science and Technology, investigates the use of high-energy accelerator-based systems to reduce the radioactive toxicity and volume of spent nuclear fuel. Decisions on the future of this new program are deferred pending the recommendations of the Vice President's National Energy Policy Development Group. Until these priorities are clearly identified, the Department will not request funding in FY 2002 for major new initiatives.

FY 2002 Funding Request for Science Programs

In Science, the budget enables DOE to continue to serve its role as a primary federal supporter of scientific research – a role which has earned praise for Nobel prize winning research, cutting-edge R&D, world class research facilities, and our highly regarded national laboratories. Funding maintains the schedule for the Spallation Neutron Source project which will help the U.S. to maintain its preeminence in science and technology. The FY 2002 budget request for the Office of Science is $3.16 billion for FY 2002 in the "Science" appropriation, an increase of $4,436,000 over FY 2001; and $8,970,000 within the "Energy Supply" appropriation.

The Office of Science is the dominant supporter of the physical sciences (physics, chemistry, etc.) in the U.S. and plays a major role in supporting other scientific fields, including the life sciences, mathematics, computation, engineering and environmental research. We manage a vast network of major scientific facilities that are essential to the vitality of the U.S. research community. Tens of thousands of the leading research scientists in the U.S. – representing virtually every scientific discipline – depend upon the Office of Science to maintain and operate these unique facilities.

The FY 2002 request for the Office of Science's basic research portfolio supports the President's goal to strengthen the U.S. scientific enterprise to ensure continued international leadership in technological innovation, and DOE missions in energy, environment, and national security. Basic research in the Office of Science is performed through six major programs:

- *Basic Energy Sciences* ($1,005 million)
- *High Energy Physics* ($721 million)
- *Biological and Environmental Research* ($443 million)
- *Nuclear Physics* ($361 million)
- *Fusion Energy Sciences* ($238 million, to be amended to increase by $10 million)
- *Advanced Scientific Computing Research* ($166 million)

In FY 2002, the Basic Energy Sciences (BES) program continues construction of the Spallation Neutron Source to provide the next-generation, short-pulse spallation neutron source for neutron scattering. The project is scheduled for completion in June 2006. Another high priority in FY 2002 is nanoscale science, engineering, and technology research. BES will build on research directions initiated in FY 2001 to explore concepts and designs for Nanoscale Science Research Centers – user facilities similar in concept to existing BES major scientific user facilities and collaborative research centers that will provide unique, state-of-the-art nanofabrication and characterization tools to the scientific community. Significant partnerships with regional academic institutions and state governments are anticipated.

The FY 2002 request for High Energy Physics (HEP) reflects the start of a four-year campaign at Fermilab, Illinois to substantially upgrade the luminosity of the Tevatron in an ongoing campaign to discover the Higgs particle (believed to be key to understanding mass) and other new particles predicted by current theories. The B-factory at SLAC, California, will begin a three-year program of progressive upgrades, interwoven with intensive operational schedules, to make important contributions toward understanding the preponderance of matter over antimatter

in the universe. Appropriately focused support for university and laboratory based physics theory and experimental research will be emphasized in FY 2002.

As a founder of the Human Genome Project in 1986, the Biological and Environmental Research (BER) program will, in FY 2002, continue its tradition of developing leading-edge research programs in biology with "Genomes to Life." This program will develop innovative research and computational tools that move biology from today's genome sequence information to tomorrow's understanding of complex biological systems. In FY 2002, BER microbial research will provide DNA sequences for four additional microbes important in bioremediation, clean energy, or global carbon cycling. In FY 2002, the Global Climate Change program will conduct research designed to reduce uncertainty in predicting the effect of greenhouse gases on future climates. Carbon cycle and sequestration research will help to assess current carbon sinks and to develop methods of enhancing natural processes for terrestrial and ocean sequestration of carbon.

The FY 2002 request for Nuclear Physics supports operation of the new Relativistic Heavy Ion Collider at Brookhaven National Laboratory to offer researchers a unique opportunity to create and characterize the quark-gluon plasma, a phase of matter thought to have existed in the very early stage of the universe. The Thomas Jefferson National Accelerator Facility will perform experiments whose results will continue to change our understanding of how quarks bind together to form the basic building blocks of our world. The currently operating Sudbury Neutrino Observatory experiment is designed to measure for the first time the appearance of a neutrino type not produced by the sun, providing revolutionary insight into the properties of neutrinos and the core of the sun.

In FY 2002, Fusion Energy Sciences will conduct basic research in plasma science in partnership with the National Science Foundation. It will continue operation of DIII-D, Alcator C-Mod, and the National Spherical Torus Experiment. Researchers will investigate alternative fusion concepts to develop a fuller understanding of the physics of magnetically confined plasma and identify approaches that may improve the economical and environmental attractiveness of fusion. The basic research into inertial fusion energy will capitalize on NNSA’s stockpile stewardship R&D effort in inertial confinement fusion.

FY 2002 Funding Request for Environmental Quality Programs

The $6.5 billion budget request for Environmental Quality programs continues environmental cleanup at sites across the country, supports a science-based recommendation to site a long-term nuclear waste repository, and maintains an emphasis on worker and environmental health and safety.

Environmental Management

The budget request for Environmental Management activities is $5.9 billion, including $141.5 million for privatization projects. This request is approximately $354 million less than the comparable FY 2001 appropriation, but essentially the same level as FY 2000. The request consists of:

- *Defense Environmental Restoration and Waste Management* ($4,548.7 million)

- *Defense Facilities Closure Projects* ($1,050.5 million)
- *Defense Environmental Management Privatization* ($141.5 million)
- *Non-defense Environmental Management* ($228.6 million)
- *Uranium Facilities Maintenance and Remediation* ($363.4 million)

Responsible for the cleanup of contaminated sites, radioactive wastes, and nuclear materials resulting from the nuclear weapons production, the Department's Environmental Management program faces some of the most technically difficult and complex cleanup challenges of any other environmental program in the world. Our Cold War efforts produced large volumes of nuclear materials, spent nuclear fuel, radioactive wastes and hazardous wastes, resulting in contaminated facilities, soil, and groundwater at over 100 sites around the country. The request ensures that the Environmental Management program employs the best available technologies and business practices, and sets priorities to address important health, safety, and environmental needs.

Cleanup of these sites is an important and a very complicated endeavor. I am concerned, however, that the estimated length of time to complete the cleanup is too long, and the costs to the taxpayer too high. As with other DOE programs, the budget request reflects my challenge to the Environmental Management program to become more efficient. I also have initiated a sweeping Environmental Management Mission Assessment to identify efficiencies and ensure that our principal focus is on accelerating the cleanup of those sites with significant environmental, health, and safety risks. We need to find ways to continue progress and meet our commitments more efficiently and at a lower cost.

To see that we achieve this, we will begin immediately to conduct a top-to-bottom assessment of our Environmental Management mission to identify what has prevented us from narrowing the cost and efficiency gap and whether our strategies are suitable. We need to identify steps to strengthen project management, implement contracting strategies that help reduce costs and schedules, better employ new technologies, and sequence work more effectively. We need to be sure we are spending our cleanup dollars on the right problems – and are addressing cleanup problems as effectively and safely as possible.

The Environmental Management budget request for FY 2002 reflects a good balance among the critical national priorities for the programs the Department administers. Our budget continues to place the highest priority on protecting the health and safety of workers and the public at all DOE sites. The request gives priority to activities needed to address high-risk wastes and nuclear materials to ensure they are properly managed and safeguarded and that progress continues to mitigate risks. Our request also keeps the major sites on track for meeting accelerated closure goals, and ensuring we are pursing the most significant mortgage reduction opportunities. For example:

> *High Level Waste Treatment Facility at the Hanford Site:* The request provides $500 million to develop the waste treatment facility at Hanford that will immobilize a significant portion of the 53 million gallons of high level waste currently stored in underground tanks. The increase of $124 million compared to the FY 2001 appropriation reflects the start of construction in FY 2002. The work is being done under a new

performance-based contract awarded in December 2000 that provides incentives for the contractor to reduce costs and schedules for the project. The request keeps the project on track for beginning hot operations in 2007, a critical milestone in the Department's agreement with the State of Washington.

Ensuring Safety and Progress for High Risk Materials: Our request gives priority to our highest risk problems. We will ensure the high level waste tanks at the Hanford and Savannah River sites are safely maintained and the tanks stabilized or closed. We will continue vitrification of waste at Savannah River site, including the development of a technology to pre-treat salt waste, a necessary step to complete vitrification of all high-level waste at the site. Our request supports the stabilization of nuclear materials, including the operation of the canyons at Savannah River to stabilize spent nuclear fuel and other "at risk" nuclear materials. We will keep the transfer of spent nuclear fuel from K Basin to safer storage, on track at Hanford. We will continue receipt of foreign spent nuclear fuel in support of non-proliferation goals.

Closure of Rocky Flats and Fernald: Our request supports the accelerated cleanup and closure of Rocky Flats in Colorado and Fernald in Ohio which have no future DOE missions. These sites offer significant opportunities to reduce the "mortgage" the Department must pay to maintain the safety and security, freeing up future dollars for cleanup at other sites. The Rocky Flats site is the largest site challenged to accelerate site cleanup and achieve closure in 2006, and to date significant progress has been made towards making this goal a reality. Both Rocky Flats and Fernald have new "closure" contracts that provide incentives to the contractor to meet or exceed accelerated completion dates. Our request also funds supporting activities at sites such as Savannah River Site and Oak Ridge that are critical to achieving closure of these major sites.

Increase Shipments to WIPP: Our request supports an increase in shipments of transuranic waste to the Waste Isolation Pilot Plant in New Mexico. We will continue critical shipments from our Idaho site to meet our commitment to the State to ship 3,100 cubic meters of waste by December 2002; and from Rocky Flats to support the schedule for closure, as well as limited shipments from other sites. The WIPP facility remains critical to meeting our closure and completion goals at other sites.

Our request also funds new high priority responsibilities as well. This includes placing the uranium enrichment plant at Portsmouth, Ohio in cold standby, keeping it in a safe and operable condition, should it be necessary to return the plant to operation in the future, and providing assistance to displaced workers. Other significant responsibilities include the safe management and disposition of about 680,000 metric tons of depleted uranium hexafluoride, which Congress transferred last year to the Environmental Management program.

We have made real, on-the-ground progress since the Environmental Management program was created in 1989. We have completed active cleanup at 71 sites as of the end of FY 2000, and plan to complete cleanup at an additional three sites by the end of this fiscal year. We successfully operate two vitrification facilities in South Carolina and New York that convert highly radioactive waste into a safer, glass form. We have produced more than 1,100 canisters

of vitrified waste at the Savannah River Site in South Carolina, exceeding our goals, and will complete vitrification at West Valley this year. The Waste Isolation Pilot Plant, the world's first deep geological repository, is up and running, disposing of waste from sites across the DOE complex with increased shipments and additional sites planned for FY 2002. We continue to make progress in moving corroding spent nuclear fuel to safer storage at the Hanford and Idaho sites; in stabilizing nuclear materials at Savannah River; in removing nuclear materials and decontaminating plutonium buildings at Rocky Flats; and in addressing contamination sources that threaten groundwater supplies.

Much of the success to date at our sites can be attributed to the positive working relationship we have established with our regulators and with others in the communities that surround the DOE sites. We will need the continued support and involvement of the state and federal regulators who oversee our work to meet future challenges and find new ways to accelerate and streamline our cleanup work. This Administration is firmly committed to conducting the cleanup safely and complying with applicable laws and regulations. We want to be sure, however, that we are conducting our cleanup in the best and most practical way possible. Accordingly, I have asked the governors of the States that host our sites and EPA Administrator Christine Todd Whitman to work with us during our management assessment to improve the compliance framework that governs much of the cleanup work at our sites. We need to review our work to make sure it is consistent with sound priorities, and promotes on-the-ground results, and reflects the lessons and technical understanding developed over the past decade. I am confident that, working cooperatively, we can find ways to achieve our shared environmental goals more efficiently.

Civilian Radioactive Waste Management

The Office of Civilian Radioactive Waste Management FY 2002 budget request is $445.0 million, an increase of $54.6 million above the fiscal year 2001 program level. This request reflects the Department's commitment to make progress while ensuring that science governs the step-wise process required under the Nuclear Waste Policy Act, as amended, for decisions regarding licensing a geologic repository for high-level nuclear waste are made. We are implementing this policy by strengthening the scientific and technical basis underlying future siting decisions.

Of the $445.0 million request, $355.5 million, 80 percent, is targeted to site characterization activities, of which $75.0 million is associated with the Site Recommendation and $280.5 million is associated with License Application. In FY 2002, the Civilian Radioactive Waste Management Program will transition from predominately "investigative science" under site characterization to "engineering and design." With this transition, resources will be applied to preparing a license application that could be submitted to the Nuclear Regulatory Commission. The request also includes a 15 percent increase to continue and strengthen the Performance Confirmation program. The Commission will use the sound scientific analysis in the license application, supplemented with the knowledge gained from Performance Confirmation, to make an independent assessment of how the repository will protect public safety and health and the environment. The request also includes $5.8 million to restart important transportation and waste acceptance planning activities. This funding will help to develop a private-sector

competitive procurement process for acquisition of a safe and cost-effective transportation capability.

Environment, Safety and Health

The FY 2002 budget request for the Office of Environment, Safety and Health (EH) is $140 million, $21 million less than current year spending. This reduction largely reflects the availability of prior year balances to fund the activities of the newly created Office of Worker Advocacy.

The EH mission is to assess and advise the Secretary of Energy of the health and safety of DOE workers, the public, and the environment near its facilities. EH performs independent environment, safety, and health oversight of the Department's programs in nuclear safety, worker safety, and radiation protection. In a new role, EH is responsible for helping workers obtain appropriate benefits under various state workers' compensation programs, and information and medical records when applying for benefits under the Federal Energy Employees Occupational Illness Compensation Program Act of 2000.

Conclusion

Mr. Chairman, and members of the Subcommittee, that concludes my prepared statement. I will be glad to answer any questions you may have at this time.